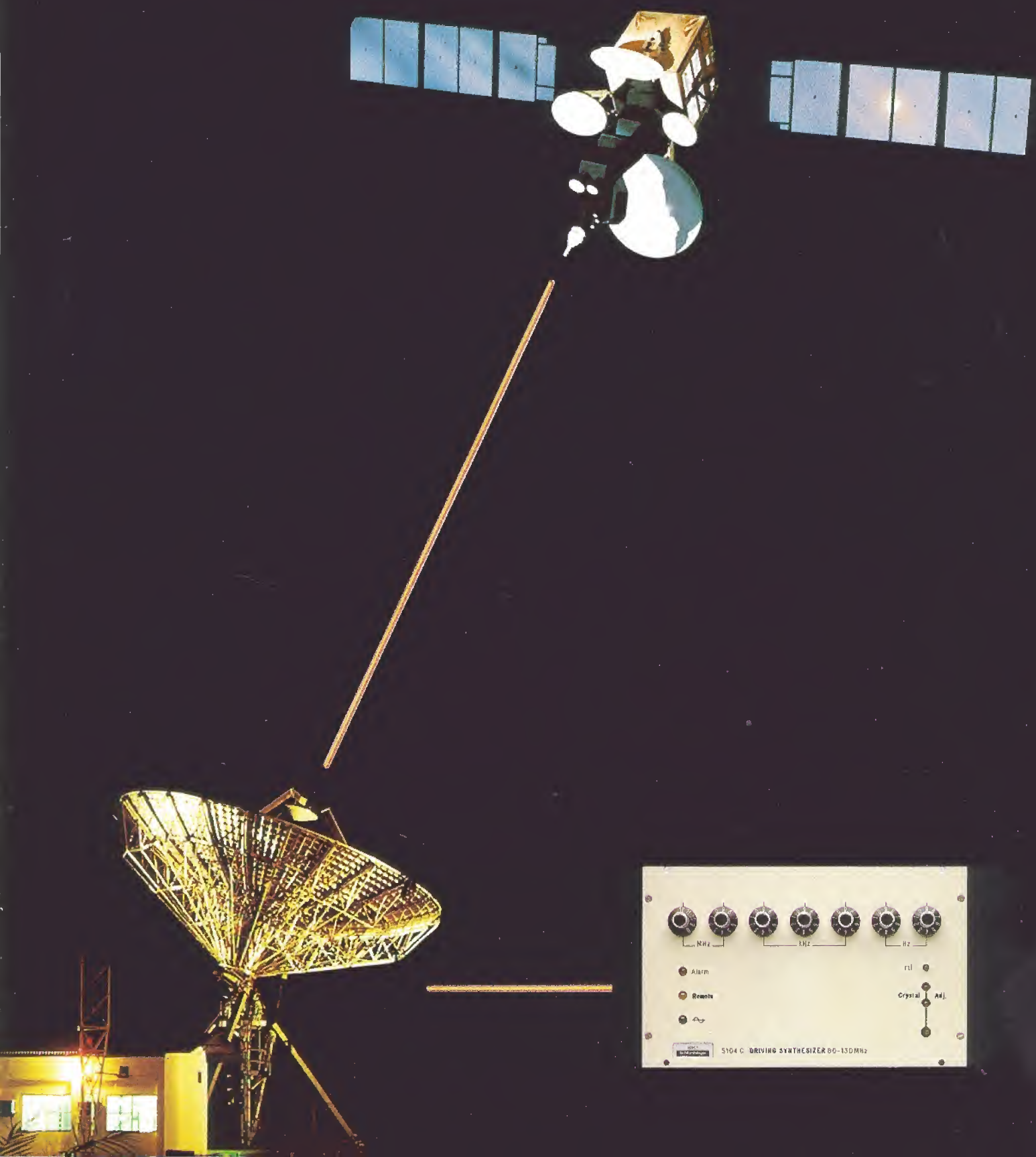
Schlumberger Instruments

MICROWAVE LO DRIVER 5104C



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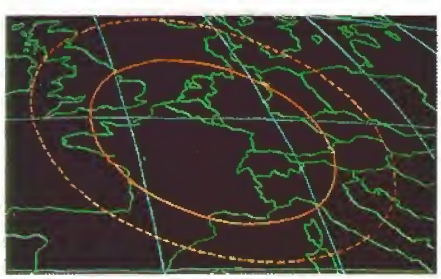


Applications

Satellite transmission is a growing medium of communications. It has been necessary to develop new transmission methods to take advantage of this new medium.
One of the newest, the NBTDMA (Narrow Band Time Division Multiple Access) combines the advantage of the old methods (high performances, adaptability to transmission speed) with increased access capability.
The transmission/reception equipment from the signal multiplexer up to the microwave antenna must meet these new performance requirements.
The 5104C has been developed to cope with these new applications.
Its frequency range (80 MHz – 130 MHz) and its spectral purity preserve the signal quality up to 11/14 GHz and up to 30 GHz for future applications.

Analog transmissions

- FDMA/SCPC
  Frequency stability : 18 Hz/day at 6 GHz
  Phase noise : – 114 dBc at 100 Hz/Fc

Digital transmissions

- SMS/IBS
  Phase noise meets Eutelsat/Intelsat specifications
  Spurious ≤ – 76 dBc

- TDMA (narrow band, broad band)
  Phase noise : – 105 dBc à 10 Hz/Fc
  Low microphony

Satellite positioning

- Ranging
  Phase noise : – 136 dBc à 100 KHz/Fc
  phase stability : ≤ 0.3°/h (option 01)
  standard BCD programmable
  (optional IEEE 488)

Main specifications

High spectral purity :

- – 105 dBc at 10 Hz from the carrier
- – 136 dBc at 100 kHz from the carrier

Long term frequency stability :

- 1.10^{-8} day after 3 days of uninterrupted operation with a constant temperature.

Long term phase stability :

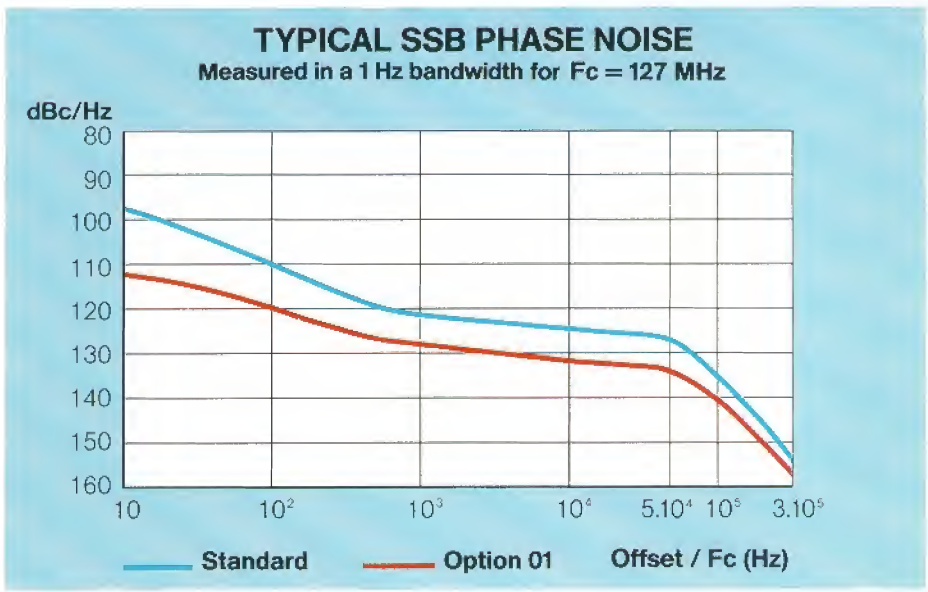
- ≤ 0,3°/hour after 3 days of uninterrupted operation with a constant temperature (option 01)

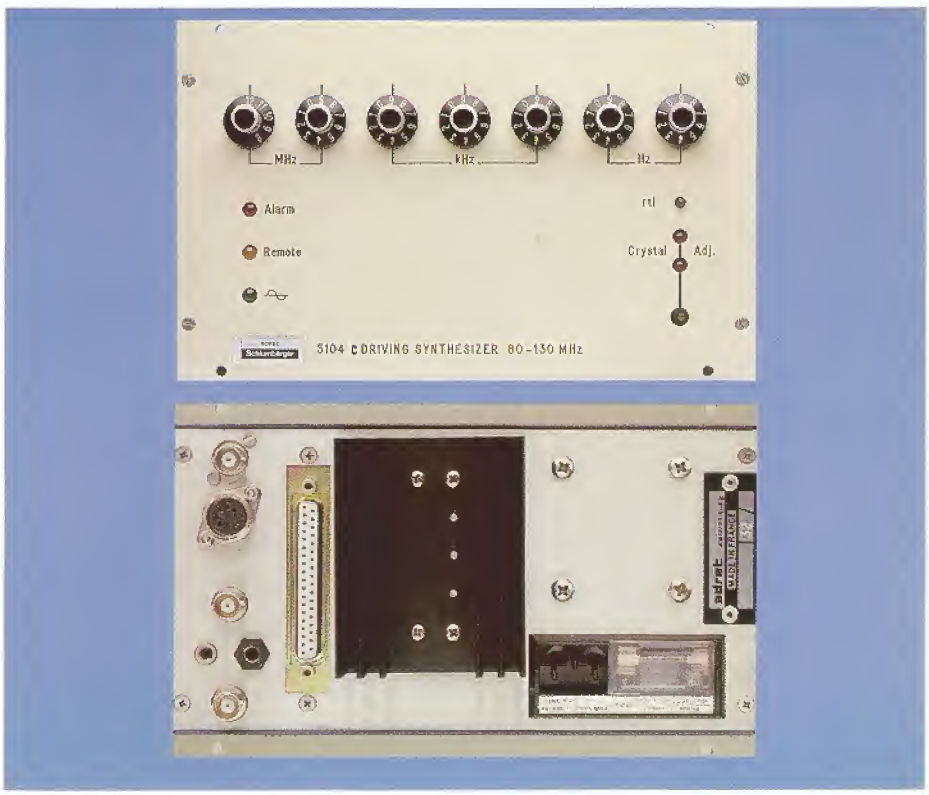
Low microphony

Reliability :

- MTBF > 15 000 hours

BCD programming standard, optional IEEE 488





Microwave LO driver 5104C

Specifications

Frequency

Range : 80 to 129,9 MHz

Resolution : 10 Hz

Stability

- 1×10^{-8} per day after 3 days of uninterrupted operation with a constant temperature
- 3×10^{-9} per day after 3 months of uninterrupted operation with a constant temperature
- External time base (quasi integral sampling loop)

Input : 5, 10 MHz
- Output : 10 MHz

Level : 0.2 to 1 Vrms/50 Ohms
- Built-in crystal adjusted by front panel potentiometer

Phase stability

≤ 0,3°/h after 3 days of uninterrupted operation with a constant temperature (option 01 only)

Output level

BNC socket on the rear panel
+ 13 dBm ± 2 dB/50 Ohms
Adjustable by potentiometer:
from + 6 to + 17 dBm/50 Ohms IS
Regulation :
± 1 dB de 0 °C à 50 °C (T° ref. : 25 °C)

Spectral purity

SSB phase noise specified in a 1 Hz bandwidth for 80 MHz < Fc < 128 MHz:

Offset/Fc	10 Hz	100 Hz	1 kHz	10 kHz	100 kHz	300 kHz
Standard (dBc)	— 90	— 106	— 120	— 123	— 133	— 144
Option 01 (dBc)	— 105	— 114	— 124	— 127	— 136	— 148

Spurious signals
- Harmonics :
  ≤ — 26 dBC (+ 13 dBm)
- Mains spurious :
  ≤ — 75 dBC
- Spurious :
  ≤ — 76 dBC (+ 13 dBm)

Remote programming

Settling time ≤ 30 ms
BCD :
- 1 – 2 – 4 – 8 TTL
- "1" level : + 2/+ 5 V 0.1 mA
- "0" level : 0/0.7 V 0.2 mA
- Impedance : 2.2 KOhms

Optional IEEE 488
- External device
- Talker (L1, LEØ)
- Listener (L2, LEØ)

Power supply

- Mains : 100-120/220-240 V (+5 % −10 %)
- Frequency : 50/400 Hz
- Consumption : 25 VA

Dimensions

- Height : Front panel : 126 mm (5")
  Cabinet : 110 mm (4 1/3")
- Width : 203 mm (8")
- Depth : 410 mm (16 1/8")
- Weight : 6,5 kg (14.3 lbs)

Accessories

Housing : Cabinet for 1 or 2 instruments 19" rack mounting (option 15)

Options

- 01 : High spectral purity
  High phase stability
- 03 : External IEEE 488 interface
  (5104 B compatible)

The specifications in this document may be changed without notice

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